

Vol. V. No. 8.

August 15, 1908.

THE

# PSYCHOLOGICAL BULLETIN

THE PROBLEMS OF MENTAL REACTION-TYPES,  
MENTAL CAUSES AND DISEASES.

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## I.

The inevitable question as to the causal position of psychogenic complexes is at last faced by the two most valiant defendants of Freud's conceptions in the domain of dementia praecox.<sup>1</sup> Many critics seem to have misquoted Jung. E. Meyer's comments in his remarks on Jung's book (*Arch. für Psychiat. u. Nervenkr.*, XLIII., 1312-1315), seem to have forced the issue with Bleuler.

In my discussion of the relations of emotional and intellectual functions in paranoia and in obsessions (*PSYCHOL. BULL.*, Vol. III., p. 262), I pointed out that Bleuler refuses to accept dynamic principles in psychology, in the face of his most suggestive conception of affectivity. The same attitude is maintained by him in this article, while Jung is decidedly tending in a frankly dynamic direction. Bleuler's argument shows up the whole apparatus of reasoning which restrains the natural instincts with what seems to me a dogmatic strait-jacket.

Bleuler's thesis is: The complex (in the sense of an emotionally active experience or reminiscence or idea), is not the cause of the disease, but it is the cause of its symptoms or of its becoming manifest. Bleuler "distinguishes strictly between the physical disease and the symptoms. The latter are almost altogether in the mental sphere in dementia praecox. Their totality constitutes the phenomenology of dementia praecox. The real disease or disease-process is still wholly

<sup>1</sup> 'Komplexe und Krankheitsursachen bei Dementia praecox,' von Prof. E. Bleuler und Privatdozent C. G. Jung, *Zentralbl. f. Nervenkr. u. Psychiat.*, N. F., XIX., 220-222.

unknown. It may be an anatomical brain disease or an auto-intoxication or an infection or anything whatsoever; and according to our assumptions we might make different hypotheses as to the causes; but that is none of our concern here. Observations seem to have demonstrated to us that the disease proper, even if considerably advanced, need not produce any of the symptoms usually considered. Physical processes of the brain can never have as corresponding phenomena the prominent symptoms of dementia *præcox*, such as delusions, blockings, hallucinations of words, sentences, and shapes (*Gestalten*), and negativism; but only diffuse phenomena, such as *general* inhibition of thought, *general*—as yet unknown—disorders of intellectual elementary functions, melancholic and manic moods, subjective noises, photasmata. The *secondary* symptoms which usually come to the front must be determined by an additional (psychic) cause. If this cause is absent, the real existing disease may remain latent. The symptoms become manifest when, for instance, a complex of emotional weight begins to act. In the abnormally functioning psyche certain consequences of affects go much further than in the normal; but they are not different in principle. Fragility of the bones is, as such, a disease devoid of symptoms. It only gets symptoms when a trauma acts; only then it becomes manifest. The trauma has qualitatively the same effect as in normal conditions, but quantitatively very different ones. The same relation obtains in dementia *præcox*."

Putting it somewhat differently, Bleuler asserts that what we see in dementia *præcox* should be considered as the 'secondary symptoms' depending on definite psychic mechanism determining only the 'content' of the symptoms. This determination depends on 'complexes.' "No woman who has not either a longing for children or fear of pregnancy, will imagine herself to be pregnant and have the corresponding hallucinations." "A delusion, a hallucination, is hardly conceivable without content, nor is blocking conceivable except at a definite point, and that necessitates a mental cause or determination." "Moreover, we see that the disease becomes often manifest, or relapses or improvements occur, under external circumstances which would also have affective weight in the normal. Hence we are justified in concluding that the complex determines the symptoms themselves and not only the content. The complex is not only the cause of the content of the hallucination of gravidity, but also the necessary cause of the occurrence of the hallucination. Since nobody is devoid of complexes, the disease process always finds them available, and any exacerbation will favor their harmful work." A mere exacerbation of the disease-

process can then probably also precipitate an exacerbation without co-operation of a complex, just as fragility of the bones can reach such a degree that the bones give out without trauma, merely under such ordinary functions as walking and breathing. As the predisposing foundation becomes greater, the *Gelegenheitsursache* (the complex required) may be much slighter and still produce symptoms.

Bleuler does not define what his 'primary symptoms' are, and it is therefore impossible to consider the justification of this logical manœuvre. The main reason for his division into symptoms produced by the disease itself and secondary symptoms due to complexes seems to be that "certain symptoms of acute attacks, such as the manifestation of catatonic 'Benommenheit' and the far-reaching dissociation in catatonic and amentia-like excitements, cannot be readily explained psycho-genetically so far."

This peculiar dualism of events affects also the concept of 'disposition.' We should distinguish the 'primary disposition' for the disease itself and the 'secondary disposition' for definite manifestations. In this sense it depends on a disposition to infection with typhoid bacilli whether a person will get typhoid ulcers or not; but even if typhoid ulcers are established there still may be a special 'disposition for hemorrhages.'

This shows clearly that (Bleuler, like the Kraepelinian nosology, makes such diseases as typhoid fever and general paralysis the obligatory *paradigma* of the nosology of dementia praecox. He feels sure that by far the majority of the cases of dementia praecox belong to but one or at the most very few genuine disease-processes, just as the real nucleus of the cases 'which until lately were called general paralysis,' depends necessarily upon metasyphilis. A small rest (of merely *similar* states), as in 'general paralysis,' may be formed by totally different diseases. Further: "Perhaps we must not only consider disease-processes, but also *morbid dispositions* which might account for the symptoms without any new disease-process." This is the crucial alternative, which we might put as follows: Is not the rôle played by syphilis and metasyphilis in general paralysis played by 'psychological disposition' in dementia praecox? Bleuler claims that in the cases of 'general paralysis' 'which do not belong to metasyphilis,' we also find a different course and an anatomically different brain-disorder; this proves the fundamental difference. But even in that morphologically well-determined field, it is not so easy in practice to mark the distinction as Bleuler seems to assume, since there are cases of transition between syphilis and metasyphilis in which we cannot make

a final and absolutely conclusive decision anatomically, so that we must either become dogmatic or admit that the logic of facts is not as clean-cut and unequivocal as the man-made logic of hypothesis. On the other hand he admits that, in some cases, a mere *disposition* of some sort makes it possible for the complex-phenomena to develop, but then they do not by themselves lead to a special disease, to the symptom-picture of genuine dementia *præcox*. These cases therefore are not dementia *præcox*. We might, however, ask why should we draw the line as long as Bleuler admits that the 'physical disease' and the primary symptoms are unknown? Would it not be wise to try the facts at hand before we resort to the unknown as the real 'Ding an sich' and a possibly unnecessary division?

E. Meyer had incriminated Jung with a modern revival of the preference of psychic causes in the etiology of mental disease. Bleuler is afraid of any such heresy and bluntly claims that Jung's work (see *PSYCH. BULL.*, Vol. IV., p. 196) did not deal with etiology. Bleuler emphatically declares that Jung's affective toxines are merely a collateral hypothesis and not even accepted as such by him. In 'real dementia *præcox*' there is a "real autointoxication from internal secretions (Kraepelin), not mentally determined, or an infection (Bruce), or a glia proliferation or whatever it may be" a real physical disease back of it all. The complexes do not in any way determine the disease, but they determine in some ways the greater part of the symptomatology. Bleuler assures us that we also shall find primary symptoms of the real disease and of its exacerbations. Meyer saves the anti-psychogenic dogma with the statement that the complexes govern the thought not because they are the cause of the disease but because the disease allows them to come to the front 'uncorrected.' Bleuler admits that, but not without adding that the word 'un-corrected' does not make the whole difference between the effects of complexes in the patient and in the healthy. Bleuler also feels obliged to decline being on the same ground as Gross, who had described 'complex phenomena' in a case of manic-depressive insanity. The case 'belongs to dementia *præcox*'!

Jung feels obliged to make an additional summing up; he agrees with Bleuler on the following points:

1. The symptomatology of dementia *præcox* is to a large extent determined by complexes as to its contents.
2. Acute attacks, exacerbations, aggravations, remissions, etc., have extremely often psychological causes which become efficient on ground of the brain-disposition peculiar to dementia *præcox*.

He differs from Bleuler on the following points:

1. He leaves open the question as to what the preparation of the brain peculiar to dementia consists in, whether it is already the 'latent disease' or not.
2. He does not know whether there exist any primary mental symptoms devoid of ideogeneity or psychogenetic cause.
3. With Bleuler he does not doubt that the disposition to dementia *præcox* can be developed into the organic disease-process on ground of *non-psychological* causes, but he doubts whether this is so in all cases or forms of dementia *præcox*.

In other words, Jung now explicitly takes the attitude that the complex not only determines 'the content' of the abnormal developments and the secondary symptoms, but that it can have a rôle in the origination of the organic disease-process.

This rather full recapitulation touches the very foundations of psychopathology. Bleuler keeps aloof, but Jung tends to yield to the inevitable consequences of the facts as sketched in my comments on Jung's 'Psychologie der Dementia *præcox*' (PSYCHOL. BULL., Vol. IV., p. 196), and in my interpretation of dementia *præcox* (*British Med. Journal*, Sept. 29, 1906) as most probably essentially the product of conflicts of instincts and habits, including the reaction to 'complexes.'

The whole discussion will surprise any one who is not under the peculiarly powerful spell of the term 'disease' and ready with the dialectic apparatus which is used to disarm the claims of actual 'mental causation.' What can it all mean?

The great contribution of Bleuler and Jung to psychopathology is the splendid material they have furnished towards a deepening of the conviction that many abnormal mental developments are best understood along the lines of reactions to affective experiences, *i. e.*, principles which also govern our normal mental life. Bleuler's 'Affektivität, Suggestibilität, Paranoia' (see PSYCHOL. BULL., Vol. III., p. 259) is full of the most valuable data for a psychogenic interpretation of paranoic states. Jung's work on dementia *præcox* shows further that even such a strange alteration of mental activity as that presented by many phases of the process of mental dilapidation yields readily to an analysis similar to that of hysterical events. The bulk of the facts is in harmony with a psychogenic explanation not only of psychastenia and hysteria but of a broad range of mental disorders. Only for the deterioration, Jung was tempted to appeal to a production of toxines, and Bleuler's medical conscience forces him one step further.

back: to the 'disease,' that fetish which physicians see back of the phenomena, and which at times relieves them of the burden of getting dynamic clearness into the events. It is also the one hope and *pièce de résistance* in the desperate struggle for the maintenance of psycho-physical parallelism. The secondary symptoms, the passing show of plain mental reactions, may have their laws of association and in a way a system of causal connections, so that it is correct to speak of ideogeneity or psychogenic developments. But out-and-out causation, especially causation of lasting deterioration such as must have some foundation in lesions which cannot escape microscopic demonstration much longer—that demands a 'disease' back of the symptoms or facts. It is wholly unknown, but it 'must be' one or at the most but a few kinds of processes; we do not know its direct symptoms but only the secondary symptoms, and these are mental.

Wernicke consoled himself concerning the *noli me tangere* of mental causes by speaking of the excessive 'Causalitätsbedürfniss' of man. Why these efforts? Simply owing to the hesitancy about a revision of some fundamental tenets discussed in connection with the philosophical testament of Möbius on the hopelessness of all psychology (PSYCHOL. BULL., IV., 170-179) and a residual of scholastic faith in noumena and in lesions, however uncorrelated, in the field of nosology.

## II.

Odd as it may seem, psychopathology has produced most fruitless debates over two of its favorite issues: The desire to understand the peculiar reaction of mind as signs of irritation or other lesions of its organ, and the effort to use in a dogmatic way the medical formula of specific diseases.

Both of these tendencies are legitimate and fruitful enough in their sphere, but outside of it they become a distracting and misleading rut, away from the line of sanest development.

To counteract this I have made use of the term substitutive activity for a group which it is unprofitable to discuss from a neurological view-point, and I have tried to divest the notion of diagnosis and disease of its dogmatic noumenal characteristics.

First, the foundation for the term substitutive activity.

Psychopathology has been somewhat misled by traditional psychology to a premature stabilization concerning an issue which is relatively unessential except for systematic analysis: the problem of elements of mental life with its inherent hankering for the *Ding an sich*. Most psychiatries make us believe that morbid mental activity is mor-

bid owing to the introduction of absolutely abnormal additional elements, and they enumerate them as hallucinations, delusions, melancholia and mania, obsessions, etc. With these supposedly *specific* products of 'disease' the psychopathologist proceeded to apply the venerable formula 'ubi est morbus,' and it utilized the systematized inferences of neurology, until finally the dogma arose that what we call mental in daily life could not be scientific unless it was translated into a form of meta-neurology—a systematization of neurological inferences, usually least supported by those who *have* a first-hand knowledge of the brain and its lesions. The result was that psychopathological inquiry rested its case on an archaic method which clings to it even where the modern developmental and relational formula of knowledge and inquiry with its three dimensions and obligatory time-component, viz., the formula of experiment, has superseded the static, geometrical schemes which telescoped the natural events if possible into one plane devoid of time-component, thus playing with dynamic principles to the extent of making even biologically thinking men content with the parallelistic theory. The consequence of the noumenal attitude, the attitude that hunted for the *Ding an sich*, the element and if possible its 'lesion,' instead of the events in terms of experiment, is that the events which should occupy us are not studied as experiments of nature, on the ground on which they are *accessible*, but on the ground of a system of assumptions which forms a pseudo-scientific tautology, just as the morality of the past had to rest on a religious-moral construction rather than on the plain sociological and individual needs. Most of what is offered as neurological explanations of mental processes and especially abnormal mental processes is a tendencial precipitation of a mixture of truisms and assumptions into the terminology of a field in which there is to-day no possibility of bringing the conclusions to a test. It is neurologizing tautology of what had better be expressed as we experience it: biological reactions of the mental type.

Neurology certainly has its field, and is one of our most valuable controls, but why should we surrender to it the wholesome pluralism of practical life when we work in psychopathology?

To reduce the facts and events of this world to a system in which they can stand word by word as peacefully coexistent, as in an encyclopædia, with elimination of the time-component and with a towering logic of noumena, was the luring dream of an earlier stage of knowledge. To see things as participants of *events*, to reduce the complex *events* to simpler *events*, but still events with a time-compo-

nent, is the modern logic of science and also the leading feature of biological psychiatry, and we favor it especially because its schemes give us space to note essential factors and components of our observations and logic of events which were too hastily crushed out in the telescoping process copied from the logic of words.

To describe events, biological or non-biological, we record the starting points or conditions of the outset, then the developments, and the final result and resting point. We are satisfied with the correctness of the picture and the implied interpretation, if the various steps are in harmony with *fundamental experiments* or thoroughly tested and standardized events, and if we find that the experience with principles of modifications of the experiment allow us correctly to foretell the modification of the *results*.

This practical attitude allows us to take account of all the corollaries concerning the material which enter into the events. The psychological observations *must tally* with the laws of neurology, or if they do not there is cause for a danger-signal. Since, however, not every psychologist is a neuro-histologist, we should encourage all methods which keep the observer on the ground on which he has a fund of experience, the observer of mental life, behavior and conduct on the *ground* of mental life (in the sense of biological adaptation of the type of behavior and conduct), and the neurologist on the ground of neurological experiments, but last of all things should we encourage the hasty translation of *events* into inferential schemes of *structure*, the psychological histology and the histopathological psychopathology. I have too much respect for the spheres of histology and study of behavior, with their respective laws of propriety and rules of test and control, to encourage the hybridization which does not usually favor high standards in the outcome.

We therefore see in *psychopathology the study of abnormal behavior and of the modifiability of its determining factors*. To use a slang phrase: we study what is doing, and the safest final test we can introduce, better than that of any ready-made and plausible nerve-cell scheme, is the question: how does the result of an analysis influence the observer's *action* in the shaping of events or in formulating the experiment of nature? The most essential achievement is not the erection of a word-palace of logic or of description, but the enlargement of our command of action, however modest.

Creation of comparative standards with the same denominators, and measurement of the achievements by their influence on our action in further analysis or in fruitful modification of the experiment, is the ideal which I should like to make for.

For a long time physicians had to discourage attempts to explain abnormal conduct along the lines of what we experience with the supposedly normal. In the first place, this averse attitude was most urgently demanded by medicine, as long as human conduct was too exclusively sized up according to moral schemes to be looked at in a fair matter of fact manner. Abnormal mental reactions were met with the schemes of moral training and punishment on a doctrine of sin, even when rating the situation as sinfulness was glaringly a grave transgression of justice. The physician further sees that under the guidance of ordinary untrained every-day practical psychology abnormal conditions are often not satisfactorily influenced, and he settled into the non-committal régime of procuring rest and protection and physical improvement; and since there was no inducement to look for the possibly helpful, though less obvious, psychological determining factors, he satisfied the instinctive impulse for explanations in a chase for the histological noumenon, that is, the 'real' morbid cause, encouraged by the dogma that mind is anyhow either an epiphenomenon or an independent essence, outside of the sphere of the physician.

As we study anomalies of mental activity and conduct we find some plainly due to extra-psychological events, for instance, happenings in the brain, such as vascular occlusions with consequent softenings or inflammatory processes, or simple senile atrophy, or intoxications; that is, conditions which in their etiology, evolution and outcome are clinched in terms of physiology and pathology of the nutrition and vascular apparatus of the brain. There are, however, other disorders in which the circulatory and nutritional facts are merely incidental, and which we find best expressed in terms of mental events or reactions and their consequences. As such I should mention the results of emotional shock or of emotional fretting, or of continued uncorrected and unchecked false reasoning. Since in these conditions certain infra-psychic biological relations are frequently found to be at fault as well, through incidental loss of sleep, and malnutrition, etc., the physician is inclined to over-rate them in his psychophobia and, finally, to *assume* these sub-cerebral conditions as the noumenal or 'real' cause, even where he does not *find* them or has nothing whatever to work on.

In the face of these tendencies and especially in connection with the study of hysteria and psychasthenia, it has become possible to demonstrate chains of mental happenings which tend to fulfill all the conditions of an experiment, *i. e.*, to single out the initial factors, to

show their natural elaboration and the development of the inevitable result; moreover, it has become possible to show how successful treatment depends on definite laws of modifiability of these factors.

One of the first things that have proved of value in this direction has been the abandonment of fussing over the supposed *elements* of psychology and the attempts to explain the chains of events out of such elements. It proved to be much more satisfactory to speak in terms of situation, reaction and final adjustment and to describe all the facts of interaction according to their weight without excessive scruples over the systematization of what will be the last thing to reach a stage of more than logical certainty. It is better to use the broad concepts of instincts, habits, interests and specific experiences and capacities, than the concepts of structural analysis at the present stage of our biological knowledge.

Some of the reactions are so closely akin to what we experience in normal life that they do not create any difficulty. An excessive depression, leading to a suicidal attempt and a profound alteration of the whole biological attitude, presents a plausible chain of evolution, and is apt to tell us all that we can act upon in the case. But how about the hysterical developments, or psychasthenia with its strange ruminations and tantrums, or the odd reactions in delusional states where the patient becomes apparently incomprehensible? In all these conditions somatic explanations have been tried; hallucinations have been described and explained, as the outcome of peripheral irritation with resulting secondary sensations, or hallucinations and delusions have been described as sejunction of nerve mechanisms. Visceral anæsthesias and paræsthesias have been appealed to without in the main achieving more than paraphrasing the conditions or broadening the field from which valuable explanations can be taken, which helped in relaxing the one-sided dogma of exclusive salvation in anatomy sufficiently that some investigators again see practical advantages in working along functional and experimental lines.

As soon as we make the reactions appear as part of an adjustment, a response to a demand, the issue of our investigation becomes infinitely more practical and nearer to what we really can handle. Steering clear of useless puzzles liberates a mass of new energy. When we come to such waves of events as sleep, or many of the more strictly mental reactions such as emotions, and still more, the complex compound reactions, such as a day's work, we *cannot* get along with a bulky inventory of a body of a definite number and arrangement of cells and interaction with outside stimuli grouped according to these

cell-units of our scheme and the elements of structural psychology, but must accept higher units, reaction-curves, reaction-types, and without dropping back into a faculty psychology we are forced to admit as practical the characterization of reactions as part of *an adjustment, a response to a demand*.

What recommends this concept as a preliminary summary formula is its close adaptation to the *fundamental* formula of systematized experience, the experiment. The reactions are put down as experiments, as adjustments of a situation. This puts us on the track of the facts without our altering them to non-recognition and putting them into a narrowing strait-jacket of traditional assumptions. The excessive fear of the personal equation is ridiculous. The first step has always been keen observation of some real events or real possibilities, and the *analysis* of the means is a secondary process. Newton's apple-story and the steaming pot of Watts are anecdotes in point, perhaps not historically true but illustrative of what happened. In the concrete things we surrender more quickly our defects of observation and judgment than in the routine of traditional systems which create anomalous settings not easily checked. The theorizing is an inevitable evidence of the type of mind that can discover things, but the discoveries lie in a keen grasp on actual events and sensitiveness to new facts.

Within this study of adjustments, the concept of substitutive reactions is meant to keep us from wandering from the ground of the experimental formula of investigation. To try and explain a hysterical fit or a delusion system out of hypothetical cell alterations which we cannot reach or prove is at the present stage of histophysiology a gratuitous performance. To realize that such a reaction is *a faulty response or substitution of an insufficient or protective or evasive or mutilated attempt at adjustment* opens ways of inquiry in the direction of modifiable determining factors and all of a sudden we find ourselves in a live field, in harmony with our instincts of action, of prevention, of modification, and of an understanding, doing justice to a desire for directness instead of neurologizing tautology.

The conditions which we meet in psychopathology are more or less abnormal reaction-types, which we want to learn to distinguish from one another, trace to the situation or conditions under which they arise and study for their modifiability. For this reason I teach the students to start essentially from six types of disorders or reaction-types:

1. The reactions of organic disorders:

(a) Types which can be reduced to the symptom-pictures of asymbolia (mind-blindness and mind-deafness), apraxia and aphasia, and the symptoms of callosal lesions.

(b) Reactions, on ground of focal or diffuse affections, in the form of epileptoid responses, actual motor fits, or psychic epilepsy, or less defined states of bewilderment of dazed activity, wandering, or acts of violence, usually with subsequent amnesia; or states of diffuse memory-defects and defective judgment—(a) Korsakoff's complex: very deficient retention, relatively clear grasp of what is in sight, but hopeless time disorientation and fabrications; (b) general paralysis: especially marked discrepancies in dates and calculations, change of sensitiveness and judgment, and extravagant notions; and (c) senile reaction: defective memory, retention and orientation; tendency to live in reminiscences, often with occupation-delirium.

2. Delirious states with dream-like imaginative experiences, hallucinations, especially of sight, or especially of hearing, fleeting or more systematized under a leading effect (fear, suspicion), with deficient grasp and orientation; reaction in direct intoxication (hasheesh, belladonna), or fever or exhaustion, or prolonged exhaustive, toxic or infective influences. The exogenous (toxic-exhaustive) and organically determined forms usually show certain *physical* marks of their own; the endogenous or psychogenic types (hysterical or epileptic delirium or other psychogenic tantrums) are usually marked by stigmata of their own (hysterical or epileptoid marks and setting), and traceable to substitutive reaction-types.

3. The essentially affective reactions: the manic-depressive reaction types are marked by oscillations in the direction of feeling of well-being and exaltation and tendency to flight of ideas and activity, or in the direction of feeling of difficulty, retardation or real inhibition, and sadness, down-heartedness, or mixtures of these elements; the anxiety type follows rather the series nervousness—uneasiness—anxiety; the simple depressions are, more or less, excesses of normal depression.

4. Paranoic developments—with formally correct conduct and grasp, but inability to adapt the personal trend of thought and elaborations and attitude to the facts. We thus see the following grades of developments:

(a) Feeling of uneasiness, tendency to brooding, rumination and sensitiveness, with inability to correct the notions and to make concessions—paranoic constitution and paranoic moods.

(b) Appearance of dominant notions, suspicions or ill-balanced aims.

- (c) False interpretations with self-reference and tendency to systematization, without or with —
  - (d) Retrospective or hallucinatory falsifications, etc.
  - (e) Megalomanic developments, or deterioration, or intercurrent of acute episodes.
  - (f) At any period antisocial and dangerous reactions may result from the lack of adaptability and excessive assertion of the side-tracked personality. Paranoic developments occur wherever assertion of the personality on logical grounds and reasoning occurs on false premises with inadequate realization of need of correction — hence the occurrence of incidental paranoid episodes, and the paranoid character of 'recovery without insight.'

5. Substitutive disorders of the type of hysteria (submersion of the disturbing experience or issue, and conversion of the reaction into the hysterical manifestations, as a rule with amnesic mechanism), and psychasthenia (ruminations leading to states of tension and panic, and substitution of phobias, of obsessions, and incomplete reactions generally).

6. Types of defect and deterioration: existence or development of fundamental discrepancies between thought and reaction, defect of interest and affectivity with odd reactions; dreamy fantastic (crazy), or hysteroid or psychasthenoid reaction, with a feeling of being forced, of peculiar unnatural interference with thought, etc., frequently with paranoid, catatonic or scattered tantrums.

These conditions are not to be taken as 'diagnoses' but as reaction-types: The first two with prominence of somatic conditions; the third and in part the fourth anomalous developments of individual reactions, partly dependent chiefly on the make-up (the genuine manic-depressive and paranoic reactions), and partly dependent more especially on general situations (such as many anxiety states, and simple depressions). The fifth and the sixth group are less overt and direct excesses of response, than direct faulty substitutions of variously conditioned modes of evasion, untimely evolution of instincts, etc. In every anomalous mental constellation we ascertain: (1) The infrapsychic components (general somatic disorders or effects of disorders of special organs including the nutritional and coarsely histological disturbances of the nervous system); (2) the components which are fully sized up only with psychological conceptions, either overt and direct miscarriage, or substitution.

With such a subdivision the student is at once put on a practical basis which is suggestive in the main directions of discrimination and

action in terms of the accessible facts. He is expected to describe each case with a view to the situation and personal factors and to discriminate between anomalous reactions which point essentially to infra-psychic disorders and others chiefly *excessive* responses of individual reaction, and still others which are provisionally best described as substitutive reactions, *usurping* the place of what is wanted to really meet the constellation and suggesting an inquiry into what determines the substitution (the hysterical or psychasthenic or other reactive habits with or without circumscribed 'complexes').

It is obvious that with such an arrangement of our data we break with the sham problems of psychophysical parallelism and much of what constitutes traditional psychology. Structural psychology has its place in psychopathology as a help in the discriminative and analytical problem of identification of events; but dynamic conceptions must constitute the problem proper. In order to be dynamic, the 'mental reactions' are taken as complete phases of adaptation, or conduct and behavior, including both the 'physical' and the 'mental' aspect, as reactions of adjustment of the person as a whole in contrast to the non-mental reactions or activities of the special somatic organs. The *mental* reactions are necessarily physical, but contrasted with the *non-mental* reactions, and distinguished by the qualitative feature of consciousness in the modes of their hanging together. They are the *attitudes and reactions of the person as a whole*. They have their anabolic and catabolic aspects. Their temporary constellation determines the start and execution of any new reactions; they may make for smoothness in the reactions or interfere both in the proper hanging together and flow of adjustments and in the anabolic and catabolic balance. Disorders may prevail in either direction, in the adaptation of the stream of activity to mental or functional balance, and in that of the nutritional issue, according to definite laws of incompatibility. But the function and its disorder *may* be the only accessible material to work with. Jung speaks of the effects of complexes and claims the production of toxines, while I insist more on the interference with smooth and adequate habit-reactions and responses with possibilities of anabolic and catabolic disturbances. Why then should we have to insist so on the 'physical disease,' if it is a mere formula of some vague obstacles, while the functional difficulties give a plain and controllable set of facts to work with?

It is deplorable that what can at the best be only a temporary help and scheme to give the facts of a complex disorder like dementia praecox a suggestive and helpful order, should be given as rigid and

dogmatic a position by physicians as that which figures definitely as a disease. The 'disease' is a formula which becomes vague and distracting unless it sums up some essential facts or embodies some workable heuristic principles. The notion of *disease* or *disease-entities* is hardly ever conspicuous where it is easy to maintain the entity. Fractures and contusions are so plain that we need no noumena back of them; in infectious diseases the formula is equally plain: An organism with a certain susceptibility to a definite form of infection reacts in a definite manner. A large complex of 'diseases' consists of insufficiency or poor adaptation of function to demand, in other words, disorders of regulation. As soon as these disorders entail deficient repair of progressive structural alterations in any given part of the mechanism, that feature is apt to be singled out as the 'disease,' or as the medical slang has it, 'the pathology.' The 'disease' is the noumenon for certain expectations about combinations of manifestations. If the term is to have any value it turns on some facts which may be superficial or recondite, but which must mark points of central interest. In their contrast between hysteria and dementia præcox Bleuler and Jung appeal to the difference of the 'disease.' What constitutes a disease-unit, is either merely a reaction-type, or it is a reaction-type under special etiology and special evolution and outcome, or it is possible to single out a definite item of events (infection or intoxication or even a simple rough injury or a lesion). But in these days in which the experimental interpretation has become so much superior to the old-fashioned way of telescoping events into the concept of a 'lesion,' we cannot afford any longer to ignore the chains of conduct and behavior or mental reactions, as they may give the safest and most sufficient presentation of the facts in a disorder.

The maintenance of the disease-concept has a great advantage for orderly thinking, but like the neo-vitalistic modes of presentation of biological facts, it would be most detrimental if it should be considered as more than a formula of available facts or a starting point of more fundamental work. Under all circumstances we must beware, however, of any *a priori* definitions which might rule out strings of facts because they are 'mental.'

### III.

As soon as we put ourselves on a dynamic psycho-biological foundation, we make unnecessary the continual yearning for something back of the events, at the expense of the plain facts in evidence. The whole movement of modern thought is one of

distrust of the noumena back of things and rather favors a valuation of what is at hand in just the form in which we have to handle it. But medical discussion finds it difficult to outgrow the old habit. A charming instance deserves to be quoted from a discussion of a report of Jung on Freud's theories (*Corresp.-bl. für Schweizerärzte*, 1908, p. 219). Kesselring starts with the remark that with all the theories of Freud the essence of hysteria could not be established. The 'essence' is the residual of the craving for 'first principles,' the aim of the formal dialectic 'Causalitätsbedürfniss.' Knowledge and words do not aim to become a complete duplication of the concrete facts and events, but they aim merely to be *sufficient* for the purposes of a system of action or analysis. After this demand for still more fundamental explanation, Kesselring first rehearses the frequently repeated notion that only the layman sees anything in the contents and connections of delusions, whereas they should appear irrelevant to the physician who looks rather for the excitement, the inhibition and the general fact of delusion-formation, as the typical issue of the 'disease-picture.' These are the primary symptoms in contrast to the secondary layer. He derides the possibility of abnormal experiences having any influence on the disorder. The form is irrelevant. But as soon as the matter helps his cause, he turns around and claims: "There are also cases which demonstrate directly the harmfulness of the treatment with Freud's psychoanalysis, *e. g.*, a girl who had neurasthenic troubles following a sexual indiscretion, then was psychoanalyzed and thereupon passed into a chronic depression in which the thought that other persons knew of her lapse played the main rôle." Here Kesselring is ready to use the legitimate causal principle; why not before? Freud himself would be the last person to claim that his information and method were the last word; and those of us who follow up principles rather less exclusive than Freud's, *viz.*, the habit-disorganizations and the study of conflicts and their effects and their modifiability (see the excellent summary by Dr. A. Hoch, *PSYCHOL. BULL.*, IV., p. 161); would certainly not claim that they make further study unnecessary. On the contrary. Here is a new problem. Here begins a new set of work. No one-sidedness; no slighting of brain-histology, or of biochemistry, or of general and special pathology of the parts outside of the brain — but an assertion of plain sense to start with. The habit of analyzing facts in terms of dynamic psychology and the more careful detail-study of clinical analysis give us a safe ground of plain facts on which the details of claims about indican, the importance of a tear in the perineum or cervix, or of an error of

refraction of the eyes gets its dues, and on which we shall see that none of the biological advances of medicine shall be neglected. On the other hand, if we see that certain mental experiences aggravate conditions and precipitate new attacks or determine an improvement, we might well derive from this some courage at least to consider the possibility that the mental factors or reactions *may* really constitute the essential element in certain disease-conditions and that it is only distracting to speak of a 'physical disease,' wholly unknown in 'merely physical' terms, where the facts are so plain, and so easily understood — or slighted.

## PSYCHOLOGICAL LITERATURE.

### PSYCHOPATHOLOGY.

*Zur Analyse psychotraumatischer Symptome.* BEZZOLA. Jour. f. Psychologie u. Neurologie, 1907, VIII., 204-219.

The author discusses the difficulties and drawbacks found in analyzing cases according to Freud's method.

In the first place the preliminary hypnosis is not always applicable nor is it necessary. Difficulty is encountered particularly in anxious states or where the psychic trauma has been acquired during sleep (dreams). Some patients in spite of their willingness cannot be brought into a hypnotic state.

Also the other method recommended by Freud in which the patient is told to concentrate on a definite topic and then to relate whatever thoughts come into his mind, does not in many cases yield any result, or truth and fancy are hopelessly interwoven and even the physician with a strong imagination cannot establish any subconscious complex. The mental pictures which appear in consciousness may be more ambiguous and difficult to interpret than the dreams and symptoms already manifested by the patient.

The greatest drawback to Freud's method, however, is the danger of suggestion to the patient through the attempts of the physician to interpret and explain. In view of all these difficulties B. attempted a modification of Freud's method so that the original upsetting occurrence could be exposed, 'lived over' and united to consciousness not through analysis and interpretation of secondary manifestations but through a synthesis based on the primary perception.

Wernicke's doctrine of hallucinations led the author to seek in his analysis not for complexes but for primary sensations out of which the traumatic experience was composed. The lack of complete association (secondary identification) at the moment of the trauma, due to a contraction of the field of consciousness, leads to patches of amnesia and false interpretation of the conscious components. In psycho-synthesis the criticism of the ego is excluded and the individual conscious elements become strengthened through rehearsal of the former experience; at the same time the unconscious associated components are re-

called and finally the entire occurrence becomes conscious and the psycho-traumatic symptoms disappear.

The author outlines his technic as follows: A careful anamnesis is taken and an association test made. The patient is allowed to recline on a sofa in a slightly darkened room, eyes closed. He is then told to try and suppress all of his thoughts — to think of nothing, but to pay attention to any visual images, local sensations, general feelings, noises, odors or tastes which he may perceive, and to relate immediately his experiences without giving any thought as to the origin. One needs to ask, therefore, only a few simple questions — viz., What do you feel? What do you see? What do you hear? etc. The physician observes closely the expression and demeanor of the patient. Often a scene is at once described or a characteristic sensation felt; the patient may execute various movements, exhibit tremors, anxiety changes of facial expression, etc. The patient may remain entirely clear throughout the sitting or show varying degrees of narrowing of consciousness. In this hypnoidal state the patient may talk and act for an hour and then awaken with complete amnesia. After the treatment is begun the patient is also apt to dream in his natural sleep of the primary trauma. After some days an interest in the original upsetting incident appears in the patient's waking states and finally there is full recollection of all the details of the early trauma; the dissociated experience is thus brought completely into consciousness and the nervous manifestations disappear.

The reason for the defective association of the experience (trauma) is found in the suddenness of the insult and dissociation from the brain activity because of shock, sleep, emotion, strong distraction of attention and other conditions which make impossible the immediate association of the experience with consciousness. A number of illustrative cases are reported, some of which are given in the following brief abstracts.

*Case A:* As a child the patient was nervous and sexually precocious, suffered from fatigability and tremulousness, was imaginative and impulsive. Once he shot himself in the arm and claimed that a 'large thin man' had wounded him. He was arrested as an impostor. Two years later, after a quarrel with some companions, he fell asleep but was awakened by one of his associates who whispered something in his ear. The patient immediately became greatly excited and had a convulsive seizure with loss of consciousness. In a few days fits recurred. The diagnoses made were epilepsy and hystero-epilepsy.

March, 1902, when treatment was begun, the patient was very ex-

citable, changeable in mood, imaginative, self-reproachful, amnesic for the attacks, showed no defect. Hypnosis easily induced by verbal suggestion. Analysis of the situation just before the first convulsion showed that while asleep the patient had dreamed that a girl was shot by a boy and he (patient) was engaged in a deadly combat with the girl's assailant. This account obtained in the hypnotic state, was related under great excitement and display of strong affect—the patient showing that he was again living the dream through. He said that the boy had whispered the following in his ear: "What's the matter? Don't be so crazy. Good night."

The hypnosis was repeated several times and the patient was allowed each time to relate the dream, which he did with diminishing affect and less excitement, until finally he could relate the experience as calmly as if he were merely reading it in a newspaper.

In the hypnotic state he also explained that when he claimed that a 'large thin man' had shot him he had a vision of an uncle by whom he had once been frightened during a game of hide and seek, the uncle appearing suddenly from behind a tree in the woods. The shock at the time had been insignificant but afterwards nervous symptoms appeared.

In hypnosis the patient was given the suggestion that he relate to his parents these various concealed incidents of his life. Acting on this suggestion he told of the hide and seek incident, the shooting episode, and the dream experience, declaring that he had just happened to think of these occurrences. The result of the treatment was that the fits ceased and all the nervous symptoms disappeared and have remained absent now for five years.

*Case B:* A thirty-year old farmer, who since youth suffered from weakness of memory, irritability, insomnia, headaches, dizziness and terrifying dreams about horses. When a boy of twelve he had been thrown out of a wagon by a runaway horse, sustaining a fracture of the skull, was unconscious for a week. The patient had no recollection of the accident; his only knowledge of it was what he had been told.

**Psycho-synthesis:** Upon closure of the eyes the patient described the street where the accident occurred, and with an exacerbation of headache and dizziness he related with exactness all of the particulars of the accident (confirmed by his father). The author appends a stenographic report of the patient's description. Upon opening the eyes at the end of the sitting the patient felt much relieved and recollected all that he had related. Although the treatment was interrupted the patient reported at the end of the year that he was entirely well.

*Case C:* A thirty year old officer has been for some years irritable, unable to work, incapable of concentration. Complains of dizziness, headaches, pain in right arm and leg. He was treated by electricity; drank to excess. Increase of his symptoms after a fall from a horse. He had a hazy recollection that when a boy he fell from a tree.

*Psycho-synthesis:* Hypnosis was not attempted because the patient thought it a foolish procedure and did not believe a cure possible. He was asked to close the eyes and describe the fall from the horse. In describing the accident, at the moment he felt himself failing, he saw himself once more a boy up in a tree with some comrades. He then related all the circumstances of how he fell from the tree and sustained a severe head injury, recalled how the wound was treated and other details. He told of another fall from a horse (about which he had not spoken) which had caused severe pain in the right arm. As a result of the treatment the patient was relieved of all his complaints and gave up drinking entirely.

*Case F:* A young woman suffered from nervousness, insomnia, fear of becoming insane, hyper-sensitiveness to auditory stimuli and constant noises in the ears. Attempts at suicide were made.

The analysis revealed that at the birth of her first child the patient was greatly shocked at finding a nevus on the baby's forehead. After two sleepless nights she fell asleep only to become greatly agitated during a dream. The nurse awakened the patient with difficulty. After this the patient was entirely changed, becoming worse after a second child-birth, and after various operations intended to relieve her nervousness.

*Psycho-synthesis:* The ear noises were found to have originated from rustling of the moire dress of the nurse. The night following the sitting the patient finished in her natural sleep the dream that had been interrupted by the nurse. In this dream the patient found herself in a wood where she plucked whortleberries in order to divert herself from the terror over the birth-mark which she feared was a 'wine-mark.' Entire relief followed the completion of the dream.

A number of other interesting analyses are reported, among which is described the case of a woman who was awakened from her sleep by the death struggle of her husband who was stricken with heart-disease. After this shock the patient was unable to sleep although given all kinds of sedatives as well as hypnotic suggestion. The picture of the husband lying dead was always before her mind and sleep was impossible.

The treatment consisted in allowing the patient to rehearse the entire death scene and after this she actually fell asleep. The insomnia gradually subsided and finally natural sleep was readily induced if the patient merely thought of her deceased husband.

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## PSYCHOGENETIC FACTORS.

*Ueber die Bedeutung sexueller Jugendtraumen für die Symptomatologie der Dementia praecox.* K. ABRAHAM. Centralbl. f. Nervenheilk. u. Psychiat., XXX., 409-415.

According to Freud the symptoms of hysteria are based on reminiscences having a strong emotional value, relating chiefly to sexual experiences which date back to early childhood. Unfulfilled longings and unpleasant occurrences are excluded from consciousness only to persist as subconscious activities which later, under special conditions, emerge as hysterical symptoms. The mental mechanism consists therefore of a process of submergence and later conversion into hysterical symptoms. The investigations of Bleuler and Jung show that analyses of cases of dementia praecox along the same lines yield very interesting results. The symptoms of dementia praecox indicate that the patient uses the same kind of material as the hysterical does, that the sexual life also plays the chief rôle in the development and that a similar mental mechanism exists as in hysteria.

The object of the author's investigation is to see if infantile sexual experiences appear in the symptoms of dementia praecox in a similar manner as they do in hysteria. The case is reported of a woman who was violated at the age of ten by an uncle who threatened to burn down the house if she informed anyone of the seduction. The sexual act was repeated several times and the uncle disappeared. The child, who related nothing of the occurrence, soon began to have sexual feelings similar to those felt in the assaults and she began to masturbate. Then came ideas of reference, she felt that people knew what had occurred, they seemed to avoid her and talked about her. She was depressed, thought much of suicide, had nocturnal visions and saw the barn burning where she was seduced. She had many dreams with a strong sexual coloring and a wish for sexual gratification probably existed. When thirty-seven years old she heard the voice of a 'good uncle' from heaven; he forbade her to commit suicide, told her she would inherit property, marry and have two children. The content of those hallucinations expressed clearly the fulfillment of a wish. Later the patient was swindled out of her meager possessions and following this she became greatly depressed. She heard voices out of hell, this time it was the 'bad uncle' talking and urging her to commit suicide.

In this case it appears that a childhood experience associated with strong affect gave a definite content to the later hallucinations and de-

lusions. It is not claimed that without this sexual trauma the individual would have remained mentally normal. One can only say that the mental symptoms appeared quickly after the sexual trauma. Another case is related to show that the psychosis may develop many years after a childhood trauma.

Freud does not teach as formerly that the hysterical reaction originates out of the early psycho-sexual trauma; he emphasizes as most important an inborn disposition by virtue of which the individual reacts in an abnormal manner to sexual impressions. The author comes to the same conclusion regarding dementia praecox. A number of cases give a history of definite trauma, while others exhibit abnormal sexual traits in childhood without suffering any severe insult. These abnormal sexual traits show not only in a precocious sexual development but in a disposition to become early absorbed in sexual imaginations. If in later life a dementia praecox breaks out then these imaginations play the most important rôle. Freud has shown how childhood wishes return in dreams of adults; they also reappear in the dementia praecox hallucinations. Are we to regard these morbid fancies as early signs of dementia praecox, or does the individual who later becomes a dementia praecox merely make use of the early sexual experiences and imaginations? A morbid constitution is regarded as the essential condition, the early traumata merely determine the symptoms. It is not possible to say what proportion of dementia praecox cases contain material drawn from the early sexual experiences. The form in which the sexual complex appears in dementia praecox is preëminently symbolic. The author concludes that the analysis of the symptoms of dementia praecox shows that in the psychology of this disorder the imaginative material of childhood and sexual experiences of youth acquire the same significance as in hysteria and in dreams.

The cases are reported with such brevity that one gets a very incomplete picture of the mental disorder and in at least two of the cases there are not sufficient facts to allow the conclusion that the diagnosis of dementia praecox is assured.

*Ueber Jung's 'Psychologie der Dementia praecox' und die Anwendung Freud'scher Forschungs-Maximen in der Psychopathologie.*  
M. ISSERLIN. Cent. f. Nerv. u. Psychiat., 1907, XXX., 329-343.

Isserlin's communication is the first critical review to appear from Professor Kraepelin's clinic dealing with work of Freud and Jung in dementia praecox; it will, therefore, be read with considerable attention as reflecting in some degree the attitude of the Munich school not only

in regard to the dementia praecox problem but also in respect to the whole question of psycho-analysis and its use in psychiatry.

The author gives a synopsis of Jung's monograph on dementia praecox<sup>1</sup> and then begins his critical analysis. In the first place he complains of the unscientific method of reasoning employed by Freud and Jung and their failure to bring forth sufficient facts to make their claims seem even probable. He protests strongly against the dogmatic and arbitrary deductions and the jumbling together of fact and fancy in the psycho-analyses of Freud. When a patient forgets a certain word in reciting a verse and this word by means of a complicated series of associations is found to lead back to a former unpleasant experience we are not justified in asserting that the idea of this former disagreeable experience caused the word to be forgotten. In what way has any causal relation been shown to exist between the emotional complex and the disturbance in reproduction?

The author regards as wholly unfounded the claim that dreams, as well as many of the symptoms of dementia praecox and hysteria, express sexual longings in grotesque disguise or symbolic form. Jung is criticized for emphasizing superficial and transitory resemblance between dementia praecox and hysteria when no one doubts that there is a fundamental difference between the two disorders.

Isserlin acknowledges the great heuristic value of Jung's association experiments but thinks that the deductions made by Jung from the 'complex-signs'<sup>2</sup> are unjustified. The appearance of even several 'complex-signs' seldom allows a conclusion that a definite complex is present; what one can at most conclude is that an emotion is indicated. Jung calls a lengthening of reaction time a 'complex-indicator' and neglects all other factors which might prolong the reaction time. One must never forget that the usual association experiment reveals to us only the beginning and end of a complicated process, and when we conclude that a definite complex is present we assume something not demonstrated by the facts of the experiment.

In the analysis of the dementia praecox case published by Jung in his book, a marked fluctuation in reaction time was noted; prolonged reaction times, particularly when accompanied by qualitative changes,

<sup>1</sup> For other reviews of Jung's work see articles by Adolf Meyer, PSYCHOLOGICAL BULLETIN, Vol. 4, No. 6, June 15, 1907, p. 196; and C. Macfie Campbell, *Rev. Neurology and Psychiatry*, Vol. 5, May, 1907, p. 411.

<sup>2</sup> Prolonged reaction time, faulty or superficial associations and the forgetting of the associated word when the stimulus word is repeated are spoken of as 'complex-signs,' indicating that a complex of ideas of strong emotional value has been struck.

were attributed to the influence of a complex. But just in this case Isserlin thinks it is far more probable that the phenomena mentioned are due to a primary disturbance in will and activity rather than the result of an indirect and complicated participation of a complex acting through the intellect.

The author proceeds to discuss the general psychological basis for Jung's views. He recognizes in the whole exposition a 'modified association psychology.' Its characteristic is the splitting of the mental experiences into complexes of ideas, and in this respect is to be contrasted to the psychological principle which holds that a unitary consciousness forms the basis of our mental life.

Jung's psychology is throughout atomistic; instead of an undivided consciousness it offers us a mosaic of psychic molecules. The complexes are thought of as ideas bound together with a strong emotion and they lead a more or less independent existence apart from the complex of the real self. Conscious phenomena are regarded as a creation of these autonomous complexes. The normal mental activity finds among these created complexes no acknowledged place. The autonomous complexes take on human characteristics, they become transformed from aggregations of ideas to 'special souls.' They think, act, hate and love, they drive out and are driven out, make use of secret ways and sharp practices like a clever diplomat. They become imaginary personalities and restrict the activity of the real self. The object of the psycho-analysis is to furnish an outlet for these mental parasites — it allows them, so to speak, to live their life out.

Such a doctrine the author thinks deserves the characterization of a 'complex mythology,' and he sees nothing in the whole exposition to indicate anything more than that we are dealing simply with obsessive ideas.

Being without an empirical-objective foundation for a psychopathology, our psychiatric conceptions are still largely subjective and colored by feeling — this alone has made it possible for one to believe that the morbid manifestations in dementia *præcox* are in truth actions of a concealed reason. Having no objective data to disprove such a supposition, the author feels that he has performed his duty by pointing out the complications and improbabilities of the claims, the questionableness of the method and the insufficiency of the general (psychological) foundation.

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## GALVANIC REACTIONS AND ASSOCIATIONS.

*Psychophysical Investigations with the Galvanometer and Pneumograph in Normal and Insane Individuals.* FREDERICK PETERSON, M.D. (New York), and C. G. JUNG, M.D. (Zürich). *Brain*, 1907, XXX., 153-218.

The purpose of the investigation was to study the value of the so-called 'psychophysical galvanic reflex,' as a recorder of mental changes in connection with sensory and psychical stimuli. Observations were made at the same time on the accompanying respiratory phenomena so that a comparison could be made between galvanometric and pneumographic curves taken simultaneously under the influence of various stimuli.

In 1890 Tarchanoff discovered the influence of mental conditions on the galvanometer. He observed that when the human body was brought into a circuit, a deflection of the galvanometer occurred if various stimuli (heat, cold, tickling, pin pricks, etc.) were applied to the skin. He found further that it was not necessary to actually apply any physical irritation to the body, for if the proposed stimulus was threatened or presented to the imagination there occurred a deviation in the galvanometer. He then saw that the mere recollection of fear, joy or any kind of strong emotion caused the galvanometer to swing. His next point was that abstract mental exercise such as calculation did not affect the galvanometer unless there was some accompanying exertion. He noted that the emotion of expectant attention or anticipation had a marked effect on the galvanometer. Tarchanoff identified the phenomena with changes in the sweat glands and spoke of a secretory current of electricity in the explanation.

In 1905, Müller rediscovered this psychophysical galvanic reflex and it was then taken up by Veraguth, a neurologist of Zurich, who corroborated the early findings of Tarchanoff but felt that no satisfactory explanation of the phenomenon was at hand. He argued against its being due to change in resistance dependent on alterations of quantity of blood in the vessels beneath the electrodes, because the reaction still occurred when the skin was rendered anaemic (Esmarch bandage) or surcharged by venous stasis. He also excluded participation of perspiration by drying the skin of the hands with formalin.

Jung, whose first paper has already been reviewed in the *BULLETIN*,<sup>1</sup> saw in the galvanic phenomenon a means of registering graphically the results of the association experiment and he was able to demonstrate that when the stimulus word was connected with some

<sup>1</sup> Vol. 4, No. 6, June 15, 1907, p. 197.

emotional complex deflection of the galvanometer occurred, while indifferent stimulus words produced no effect on the instrument.

As to the physics and physiology of the galvanic reflex, Peterson and Jung regard the sweat glandular system as probably the chief factor in the production of the electric phenomenon — the change in resistance, on which the deviation of the galvanometer depends, is brought about by a saturation of the epidermis with sweat or simply from a filling of the sweat-gland canals or perhaps also by intra-cellular stimulation. The path for the stimulation of the sweat-gland apparatus would be in the sympathetic nervous system.

Certain physical causes, such as amount of pressure on the electrodes, temperature and extent of the contact surface, deep breathing, coughing, etc., cause fluctuations of the galvanometer, but deviations from such factors can be recognized and differentiated from those depending wholly on psychic influences. Of the psychic factors which cause the galvanometer to swing in normal individuals, expectation (affect of attention) and emotion are the most important. Every stimulus accompanied by an emotion causes a rise in the electric curve and directly in proportion to the liveliness and actuality of the emotion aroused. *The galvanometer is thus a measurer of the emotional tone and an instrument of precision in psychological research*, while the amount of deflection is in direct proportion to the actuality of the emotion, yet the presentation to the imagination of an emotion outlived causes a deviation, depending on the capacity of the person to live over the old emotion in his imagination.

In the experiments a set series of stimuli was used, such as a loud whistle, a call by name, a loud noise, threat of a prick with a needle, questions of a more or less personal nature, etc. It was found that the reaction diminished with repetition of the stimulus. After a stimulus a latent period of one to three seconds intervenes before deflection of the galvanometer occurs.

The analyses of the pneumographic curves indicate that there is not the intimate relationship between the respiratory function and the subconscious emotional complexes that exists between the sweat glandular system and these emotions. "Respiration is an instrument of consciousness — you can control it voluntarily but cannot control the galvanometer curve."

In the field of morbid psychology the authors studied the galvanometric reactions in eleven cases of dementia praecox. A peculiar disturbance of the emotions has been described as the chief characteristic of dementia praecox. The deeper analyses of Freud and the asso-

ciation experiments of Jung show that in both hysteria and dementia præcox there exist certain thought complexes associated with strong emotional tone, embodying, as a rule, experiences preceding the development of the mental disorder. These psychological antecedents determine, in fact, the symptoms (*e. g.*, content of delusions and hallucinations).

In hysteria Freud has been able to demonstrate conscious or subconscious constellations which dominate the individual for years; such a morbid complex plays the part, so to speak, of an independent being.

The chief feature of dementia præcox is a defective reaction to stimuli in the environment; this defective psychological adaptation, expressed mainly as an attention disorder, is the result of the dominating complex of ideas of strong emotional value. The extent to which the patient will react and show adaptation to external stimuli depends on the degree to which the psychic activity is bound up with the morbid complex — this fact, the authors claim, is demonstrated by the galvanometer experiments.

In curves from cases of hebephrenic and paranoid forms of dementia præcox nothing striking was observed, but in the katatonic types extraordinary variations from the normal were obtained, the most characteristic features being a prolonged latent period and diminution in the deviation of the galvanometer so that in some cases the instrument recorded no response to any form of stimuli applied to the patient — the tracing obtained being merely a straight line.

In the association experiment, according to the method of Jung, an emotional complex (either conscious or subconscious) is revealed (1) by prolonged reaction time; (2) by utterance of a striking or unusual reaction word; (3) by failure to remember the reaction word or substitution of another word when the list of stimulus words is repeated. The behavior of the galvanometer during the association experiment was investigated to ascertain whether the psycho-galvanic reflex runs a parallel course with the complex indices just mentioned. In four normal persons the authors found (1) evidence of a parallelism between length of reaction time and height of the galvanometer curve; (2) associations that are changed in reproduction present an average plus difference in height of wave over those that are reproduced unchanged.

In the two dementia præcox cases studied, the most striking result was lengthening of reaction times, being extraordinarily long when connected with a complex. In the relations between the galvanom-

eter curves and the associations nothing different from the normal was found. The authors conclude that in dementia praecox little of a pathological nature is manifested in the general and regular mechanisms of thought but rather in the manner and method of reaction of the individual to his complexes. Nearly all of the symptoms are determined by an individual complex — this is especially true for the delusions and hallucinations. A series of other symptoms is dependent upon indirect disturbance of association by the complex. These facts explain why we do not discover any elementary disturbances — the dementia is shown only in the most delicate psychological relations. Therefore we look in vain for simple, elementary disturbances common to all cases.

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*Diagnostische Assoziationsstudien. XI. Beitrag. Ueber das Verhalten des psychogalvanischen Phänomens beim Assoziations-experiment.* L. BINSWANGER. *Journ. f. Psychol. u. Neurolog.*, 1907, X., 149-181; XI., 65-95.

Binswanger's study is the most complete and perspicuous presentation of the 'psychogalvanometric' method of Veraguth and Jung. Like the other methods (Tarchanoff's and Sommer and Fürstenu's), it seems to record phenomena greatly influenced by fluctuations of perspiration. The rapidity with which the reactions occur cannot be roughly physical or roughly chemical, but we must accept such events as can be regulated, promoted or inhibited persistently by the central organ. Mere changes of contact do not explain the facts, because even under water the fluctuation of the current is obvious. Involuntary pressure upon the electrodes does, however, modify the amplitudes of the curve perceptibly. Such reactions as sighs act only in a measure, as they imply a psychological stimulus. Among mental activities only the affective processes (in the sense of Bleuler) have an influence. Intellectual work (mechanical addition or reading) or simple sensory impression have no effect.

What led to the study was the evidence furnished concerning 'complexes' (see the reviews of the association studies of Jung in previous years). 'Complexes' call in most cases for a response of the galvanometer, which exceeds the width of the average reaction. In any association-experiment one would distinguish the 'association-curve,' that is, the curve of the whole string of reactions, and the secondary waves, which interest us here. The typical complex-wave consists in *one* very long rise and a slope with short tertiary rises.

The general curve has a steady rise, the slopes of the secondary waves are therefore in contrast to it. The secondary waves vary greatly. A picture similar to the drop of a complex (or secondary) curve is obtained, (a) where a strong affect exists apart from the experiment; (b) by active blocking of attention from the experiment; (c) by external distraction.

These facts can also be expressed as follows: An existing affect or lasting concentration of the attention on matters outside of the experiment inhibits the psychical elaboration of the stimuli. It remains poor in association and in emotion. From the lack of new affects there ensues a lack of new innervation and therefore also the disappearance of secondary waves. The gradual sinking of the curve goes with the disappearance of the acute affect. Wherever there is an increase of innervation there is a reduction of resistance, or wherever there is an inhibition or lack of innervation the resistance increases (in rest, sleep or purely intellectual work).

Prolongation of the reaction-time without simultaneous increase of the secondary curve may occur where there are intellectual difficulties, such as indistinct perception of the stimulus word or repetition of the same unusual word as a stimulus, but much more frequently under the influence of perseveration. Prolongation of the secondary curve without simultaneous prolongation of the reaction-time may occur for purely linguistic reasons where the emotional fluctuation takes place, but where an easy reaction-word is at hand favoring a habit-reaction or sound association. In the latter case the electric reaction is the only way of finding the deeper significance, which is usually subconscious and can be established only by psycho-analysis. It seems that complexes which have been displaced from consciousness may affect the psychogalvanic phenomena.

The differences between the probable mean and the arithmetical mean of the secondary curves are a safer criterion of the emotivity of the persons than the differences between the two means of the reaction-times. In the latter, intellectual and linguistic factors may play a part, whereas the galvanometric curves are conditions *only* of affective psychic processes. Among the educated and non-educated men and women the mean of those reactions which coincide with excessive reaction-times is greater than the mean of all reactions. Therefore the excessive time-reaction coincides in the average in all four groups with excessive waves of the curve. The size of the secondary curves, moreover, depends on the number of complex parts and only the theory of complexes can give an explanation for the phenomena found.

A. M.

## APHASIA.

*L'Aphasie de Broca.* FRANÇOIS MOUTIER. Paris, Steinheil, 1908.

In a volume of 774 pages, Moutier spreads before us the material on which Pierre Marie based his 'Revision de la question de l'aphasie' (cp. PSYCHOL. BULL., IV., 180-193).

Moutier gives first a history of the precursors of Broca and the period of Broca and renders the graphic 'schemes' of aphasia from the simplest to the more elaborate one of Langdon, and a review of the effect of Marie's articles. The second part (pp. 71-166) takes up the really very frail anatomical material of Broca, and next the apparently corroborative cases of the classics (taking full advantage of the opportunity to show up the shamefully careless and uncritical character of so many aphasia-reports). There he shows the utter inconclusiveness of the cases of abscess, the usually insufficient description or excessive lesions of the traumatic cases, the uselessness for the diagnosis of tumors (not one case of tumor affecting  $F_s$  alone led to aphasia!). In the cases of softening, 107 involve the foot of  $F_s$  but also much more (in 63 the entire Sylvian field, in 16 also frontal, parietal and temporal convolutions, in 13 also the island, in 13 also the 'lenticular zone'). In only 19 cases was  $F_s$  alone involved, eleven times subcortically and only nine times the cortex, but usually with a flaw; but even those who include with  $F_s$  a part of the island (as v. Monakow and others) and the more anterior parts of  $F_s$  as well (Dejerine) are not allowed a solitary convincing case.. To these 19 cases which merely seem to be in favor of a Broca center, he opposes 84 cases: 57 with integrity of  $F_s$  but aphasia due to lesion of the lenticular zone (46) or of the island (11), and 27 cases of destruction of  $F_s$  but without aphasia. Probably the best negative cases are those of Burckhardt, who removed parts of  $F_s$  without producing aphasia. The transcortical motor aphasias (simple loss of spontaneous talk) too are disposed of as clinically and anatomically unfounded ('they are either Broca aphasias or Wernicke aphasias or dementias').

The appeal to the Broca center of the other hemisphere in the negative cases and in recovery is next discussed (pp. 115-128). Out of one hundred persons nine are left-handed and two ambidextrous. What this means cannot be explained. Right and left hemiplegias occur equally often (160 against 160 in eight years at Bicêtre); yet in none of these cases was there an aphasia with left hemiplegia, although, as stated, at least one of ten persons is left handed. Moreover, even in right-handed persons lesion of the right hemisphere

occasionally entails an aphasia; or lesion of the left hemisphere in a left-handed person. There is no definite rule. To appeal to the other side in reeducation is a purely hypothetical procedure. It certainly will not save the Broca localization.

After a useful report of studies on the distribution of the Sylvian artery (showing the reason for the rarity of isolated softening of  $F_s$ , and the frequency of an extension into the marrow of the Wernicke zone by lesion of an 'artery of the isthmus'), Moutier takes up the anatomical foundation of Marie's theory: the three cases of lesion of  $lF_s$  without aphasia, the anatomy of the 'lenticular zone' and the isthmus, and the nature of the lesion: hemorrhage oftener with anarthria, softening oftener with 'Wernicke' admixtures (paraphasia, etc.). A distinction between cortical and subcortical cases is not feasible. A review of the most recent cases and of the trend of opinions is not wholly free of ready satisfaction with those who give their support (with or without proving facts), and a mode of presentation of the opponents which is not altogether fair and certainly does not avoid giving the facts a turn favoring his own side. Rosenblath's case (softening chiefly of the motor and Broca cortex and part of the island) is said to have a lesion of the zone lenticulaire — the term *is* convenient for polemics.

The second part of the book deals with the clinical analysis of the nature and symptoms of Broca aphasia.

Trousseau is the originator of that part of Marie's claim which stamps aphasia as a loss of a special form of intelligence.

Anarthria is first discussed (pp. 178-191). It is clinically identical with what goes as 'subcortical motor aphasia,' but is made to depend on lesion of the lenticular zone and not of the 'pediculo-frontal bundle.' It is the loss of articulation of the word, not necessarily a paralysis. The anarthric does not know any longer how to speak; the pseudo-bulbar (with paralyzed tongue and lips) *cannot* speak any longer. The description includes exactly what is given in the classics as pure motor aphasia: reduction to a few syllables or words; agrammatic diction, but also dysarthria. All cases can be reeducated (one case recovered after ten years). The analysis of the picture and its mechanism is as vague as the term 'zone lenticulaire.'

The Broca aphasia or mixed aphasia has naturally a wider scope. The amounts of Wernicke aphasia and anarthria can vary quite independently of one another. The analysis given deals with the speech residuals which emerge from the initial usually complete mutism within about two or three months: The peculiar mixture of anarthric,

dysarthric, agrammatic, anomic and paraphasic disturbances; the difficulties in repeating words, the perseveration, the selective loss of languages, peculiarities in singing, the variations in reading, writing, calculation, mimic, the understanding and adaptability. As to prognosis, the anarthric side usually keeps pace, at first, with the hemiplegia, but is finally recovered from, while the paraphasia and jargon and the inability to copy print into script are signs of bad omen for ultimate reeducation. Hemianopsia is also used as an important measure of bad prognosis.

The *intellectual deficit* is partly general (in memory, descriptive mimic, and sometimes in emotional mimic, in association of ideas, in judgment, etc.), and partly specialized in language (reading, writing, understanding of spoken or written language). The alterations of these faculties come, develop, and disappear according to the ordinary rules of intellectual disorders generally (and this is really all that is implied when Marie calls aphasia an intellectual disorder). Indeed it is not always easy to distinguish aphasia and dementia.

Ribot's general law of regression in general and partial memory covers what is lost in aphasia: For general memory the sequence is: the recent facts, ideas in general, sentiments, acts; for partial dissolution (in the domain of memory of signs) the sequence is: proper names, nouns, adjectives and verbs, interjections, gestures — *i. e.*, the reversal of the *evolution* of language. The French aphasic never uses the future tense, which is a late acquisition. "Automatism explains the persistence of singing, without any music center." The so-called word-deafness is merely an intellectual defect, not sensory, and ought to be called defect of word-*understanding*. Moutier is here much more strict than within his field of anarthria. The disorder of word-planning is 'just a paralysis'; but the disorder of identification is not sensory or perceptive. Here we meet the problem discussed by me (PSYCHOL. BULL., Vol. IV., p. 186, etc.), but it is not carried through consistently, because, as we see, Moutier slurs over the *degrees* of word-imperception.

The alexia (dyslexia is unfortunately used for the fatigability of reading — see PSYCHOL. BULL., II., p. 274, foot-note) is similarly slurred over. The relation between pure alexia and general aphasia cannot be settled to my mind on considerations as to whether alexia is a deficit of the order of blindness, or on ground of the fact that reading is a late acquisition. At the same time I recognize from my own experience how difficult the analysis is in many cases, and how evasive the center theory.

In the discussion of *writing*, Moutier admits that sometimes the *Broca-syndrome* may consist merely of *anarthria and agraphia*, and the latter is then the only 'intellectual defect' (while others call it then part of 'complete motor aphasia').

The disorders of calculation are a decided index of intellectual loss, also the disorders of memory, attention and imagination (said to be in part at the bottom of the paraphasia). Mimic is very variable, and the patient has little capacity of analysis, as, when asked: What do you do when you go to sleep, a patient merely answered: 'Je m'endors,' unable to think of the fact that he would close his eyes.

The chapter on *verbal images* is of fundamental interest. Moutier attacks the complex tests of Thomas and Roux as too difficult for most patients and merely a measure of general intelligence. Thomas and Roux show the patient an object, and in order to test whether the patient who is unable to speak has the name 'in mind,' they give the patient a help by mentioning, among other not pertinent syllables, the last syllable or the middle syllable or the first syllable of the word wanted, whereupon the patient has to signify the recognition. In more than twenty-five cases of 'Broca aphasia' Moutier could never obtain the slightest result even with the first syllable. But how about pure anarthria and 'transcortical types'? The Proust-Lichtheim test (a request to indicate the number of syllables of the word wanted and not utterable) finds similar disfavor. Moutier merely tests the ability to recognize the name of an object when mentioned among others—which of course is a much simpler step, only a simple identification and no trace of spontaneous rousing. Thus simplicity is attained by reduction of ambition of inquiry.

Moutier makes much of the fact that Mirallié at least denies the existence of graphic images. Why the surrender of this one type and not of the others as well? What are the 'images'?

Dejerine had said that with pure (extrinsic) aphasia a patient was able to think in words, but with lesion of the language zone or true aphasia he loses the images and thinks with ideas only. This distinction seems impossible to Moutier. It is said to lead finally to a division of internal language into words, word-images and simple ideas — mere logomachic material.

It is true that the word is a sound with a meaning. The sound disappears with anarthria, the meaning with an intellectual disorder. This meaning can persist when the word is lost. A patient can know an ink-well without being able to remember the word for it. The word is merely a symbol, but beside it there are visual, auditory, tac-

tile and kinæsthetic memories, and they constitute the 'idea without word.' Yet the word is an essential element for general clearness. Language is not, however, derived from thought but it has emancipated thought from the material objects (Bergson). The word, in turn, is a unit; we remember the word and not the syllable or letters; oftenest we even think not in words but in word complexes. In man, thought is altogether carried on in words. The words are never evoked by a 'simple thought.'

Here Moutier passes into an anthology of philosophical and epistemological reflections. He finally concludes: "The biological mechanism of 'images' is closely connected with the exercise of memory and of the association of ideas, and closely subordinated to the capacity of attention of an individual." Since we do not know the intimate mechanism of memory, recognition, and association, and since images are poor contrivances, we do better to admit frankly that we do not know why any lesion determines aphasia.

The greater part of the book consists of abstracts of 387 pertinent cases of the literature, and a report of 25 cases of their own with autopsy, and 19 without autopsy, material which will be reviewed elsewhere. The bulk of the older cases is inconclusive and a painful evidence of the looseness of most of the recorded aphasia-material. Most of the cases of the author show what we all experience: deficiency of the clinical detail in most of the cases with autopsies. Unless systematic examinations are made as a matter of course, the autopsy finds the physician at the funeral of many opportunities. Whether the material of Marie is sufficient to force us to a retreat still remains doubtful to me. The anatomical material is not without anatomical flaws. His negative cases of lesion of  $F_s$ , offer but insufficient evidence of never having had a transitory anarthria. But there *are* more suggestive cases quoted. Most of his positive cases are hopelessly diffuse and many of them would never have been called motor aphasia. To call them Broca-aphasia is a matter of definition.

Marie speaks as clinician of the old French school; most students of aphasia aim to speak as brain-pathologists, ready to utilize what anatomical and physiological evidence there is at hand, unfortunately at times too ready. But why the wholesale retreat to a very schematic formula and apparently too positive claims concerning the actual delimitation between the intrinsic and the extrinsic disorders and their relations?

The results of the contentions of Pierre Marie in the problem of aphasia might be put forth as follows: The entire tradition of speech

centers of special and independent word-components in definite localities of the cortex must be given up. There is but one complex worth being called speech or language and that forms a special part of 'general intelligence' and stands above the psychological subdivisions such as concept, percept and sensation. This language function is affected by lesion within the 'Wernicke zone' ( $T_1 + T_2 + Smg + ang.$  gyrus and the underlying white matter). There are, moreover, two forms of 'extrinsic disorders': anarthria due to lesions of the lenticular zone ( $IF_s$  being irrelevant), and alexia due to 'lesions in the field of the posterior cerebral artery'; other extrinsic disorders are not accepted (especially pure word-deafness is said not to be demonstrated). The true aphasia is not subdivided; differences in degree are admitted but the rules concerning these degrees are not formulated. There are no 'word-images'; but (p. 505) in Souques' case with more cortical lesion the vocabulary is said to have been smaller than in Rioutord's with more subcortical lesion.

What Troussseau described as 'Broca-aphasia' is anarthria + real aphasia. With this definition much of the nomenclature demands recasting. Broca-aphasia in Marie's sense is not merely 'the loss of the memories of the movements for the articulation of words,' *i. e.*, what Broca attempted to localize in  $IF_s$ , nor even the complete motor aphasia of the German writers, which includes with the loss of capacity to speak the inability to write and perhaps some difficulty in reading and even difficulties in understanding more complex language. But Marie includes even cases with paraphasia which is a plain mark of the 'posterior zone,' and accepts it even where there is not a systematic abolition of speech and limitation to recurrent utterances, but merely a certain reduction and perhaps only some dysarthria. In other words, Marie's 'Broca-aphasia' is an official and just recognition of the vague field of 'mixed aphasias' as worthy of the unit-name of a syndrome, but with a misleading name. Any complication of an anarthria in the sense of agraphia and still more of alexia, etc., Marie claims, must always be due to a lesion of the 'Wernicke zone,' and the pure motor aphasia or aphemia (without agraphia) he does not call aphasia but anarthria, a term which before was used in the more specific sense of loss of articulation in connection with paralysis in the organs of articulation, while anarthria in Marie's sense includes all forms of difficulty of articulation from complex and simple cerebral mutism to simple dysarthria.

My contention is that — (1) Marie's 'aphasia' is not a unit beyond analysis. It would consist of the elaborative or collaborative disorders.

Occasionally it appears in expurgated forms (as paraphasia and anomia and difficulties of 'intelligence' wherever the ready and correct use of spontaneously roused words is essential and fails). As a rule it is combined with — (2) 'extrinsic disorders,' disorders of the essential connections with the sensory and motor fields *per se*, and of the receptive or emissive mechanisms themselves — that which gives the 'elaborations' the sensory and motor material or substance. Of these extrinsic disorders I should recognize on the emissive side the anarthria and also many instances of agraphia, and on the receptive side at least the alexia and the word-imperception (loosely called word-deafness). Marie and Moutier push aside all the established extrinsic mechanisms and deny the very existence of the auditory receptive field, which I consider a decided mistake. They distract the attention from safe points by over-emphasizing the empirically-clinically important but extraneous issue of vascular distribution in alexia and by declining to take notice of the 'motor' cortex of articulation, etc. There is, however, a decided gain in the anatomo-clinical interpretation of the actual facts. The executive or planning mechanisms are probably more closely related to the lower part of the motor cortex than Marie and Moutier suggest. But they are right in emphasizing that these mechanisms suffer less lastingly, and perhaps not at all, by lesion in front of Ca, than through lesion beneath and behind the cortical area for articulation and phonation, through affection of the 'lenticular zone,' probably because there the arcuate bundle and uncinate bundle are affected besides the pyramidal component. Already Wernicke had felt obliged to invent a special course of the cerebral efferent or pyramidal bundles for speech when he concluded that it must run backward along the dorsal border of the lenticular nucleus before it reached the crus. Marie's faith in the lenticular nucleus is still far from conclusive evidence. By lesion in this direction (a coöperative significance of  $F_1$  and  $F_2$  is not to be excluded) true anarthria, independent of actual palsy, and true agraphia have been observed, but as v. Monakow shows, usually only as a transitory complex open to correction and reëducation. On the receptive side I should consider it necessary to account for auditory word-imperception and for alexia by special lesions where the 'word-deafness' and the 'word-blindness' really are demonstrated as such. The 'elaboration disorders' proper are more closely akin to the general intellectual disturbances in which the disorders of activity or apraxias play the chief rôle. They would have to be studied on the one hand with a view to showing their relation to the specified and more or less concretely involved 'sensory' and 'motor' elaboration-

centers, and on the other hand the relation to 'praxia,' *i. e.*, general intelligence and its most direct somatic expression.

In other words, the 'Wernicke zone' is open to further subdivision and analysis, along the lines described in my contribution to the Forel Festschrift which will appear in the *Journal für Psychologie und Neurologie*.

Aphasia would then consist of:

1. Intrinsic disorders of elaboration not necessarily based on disorder of primary and even secondary identification of words, but more closely disorders of understanding. Their relation to the asymbolia-apraxia group is to be more closely outlined.

2. Extrinsic disorders (probably overrated in their fundamental importance by the associationists): auditory, and visual and emissive: in the field of articulation and, in some cases, of writing. The disorders of writing seem to show that a sharp line cannot be drawn between intrinsic and extrinsic aphasia. There are evidently individual differences of vulnerability of the planning or emissive mechanisms. Marie has proved that *F*, as a 'motor word center' has to furnish more conclusive credentials than are at hand. Whether *agraphia* depends necessarily on a lesion of the 'Wernicke zone,' and cannot be part of the effect of a lesion of the 'lenticular zone' in even its widest scope, is a question which may bring Marie's formula most decisively and quickly to a test.

We are under great obligations to Marie for his merciless onslaught on slovenly work. He himself would probably not consider his own conclusions as the last word, but as a practical anatomo-clinical formula, a stepping stone for renewed attacks with all the helps of cerebral pathology in its broadest sense. The 'clinic' of vascular lesions is at best dangerous ground, not quite as dangerous as the 'clinic' of tumors, but certainly a long way from being able to afford aloofness from the physiological and anatomical experiments.

Moutier had a difficult task in bringing up the rear of facts in the onward march of such a brilliant dialectic and polemic plea as were the three articles of his master. The actual material has rather weakened the argument and one's confidence in the accuracy of the work of Marie's helpers.

The problem of aphasia and apraxia is and will be the main entering wedge into the problem of cerebral activity of a psychological order, and it cannot be sacrificed to clinico-anatomical convenience.

A M

## SPEECH AND THOUGHT.

*Aerztliches über Sprechen und Denken.* G. ANTON. Halle, Marhold, 1907.

The auditory-facial-respiratory-articulatory reflex arch is superimposed by the contralateral perisylvian speech-zone, preëminently of the leading hemisphere. The receptive-elaborative (temporal) disorders give a disturbance which need not involve the actual thought as deeply — the patient need not even be aware of the jargon-character of his utterances. The motor disorders with the peculiar position of song and emotional speech and the recurrent utterances and the tardiness of reëducation for nouns are next mentioned. Writing, the re-symbolization of the words or thought symbols, and reading, have their special positions. Irritation of the speech mechanisms shows in hallucinations and hearing of one's own thoughts, and in forced speaking. Here begins the encroachment upon the process of thought, in the form of delusions. Wordless thought (Twardowski, 1894) is accepted; but the word and the word-image are the powerful form as shown in hypnotism and in wake suggestion, and the force of words had well be considered in the presence of patients and in wider circles. Speech is further open to influence in hysterical mutism; it is inhibited, facilitated in various emotional states; it keeps variably pace with the wealth and flow of thought (it would not be fair to judge the mountaineers merely by what they express in words). The speech-mechanism is also thought-mechanism — this is, in light touches, a sketch of what disease teaches concerning the relation of speech and thought.

A. M.

## MISCELLANEOUS.

*A Mind That Found Itself.* C. W. BEERS. New York, Longmans, Green & Co., 1908.

As an autobiographic sketch of a man who has passed through a cycle of a manic-depressive psychosis, and at the same time an appeal to more thought about the practical needs of the insane, this book deserves the widest circulation. Although it was exploited on its appearance by some sensational newspaper articles, it has nothing in common with the frequent attempts at revolutionary disclosures by ex-patients who carry a chip on their shoulder and have had the most detrimental effects on legislation and on the attitude of the legal profession and the public — detrimental to the great majority of patients while perhaps a protection for a few greedy for special rights. Fully restored, the author

is devoting himself to the promotion of the cause of mental hygiene, spreading of information about it to the public, and especially also organizing conditions so as to make impossible many abuses and unnecessary many hardships which beset those unfortunate enough to get mental disorders. Better work in the 'asylums,' in special hospitals, education of the physicians in psychiatric clinics, organization of those who are willing to work in local efforts to assist the patients who return from hospitals and those who are in need of early treatment, and gradually a campaign of efficient prophylaxis — this is the programme of Mr. Beers and of those who are uniting with him.

The book has been subjected to much scrutiny and bears all the marks of a faithful account. Searching inquiries have failed to bring forth any demonstration of misrepresentations. In its interpretations — which are by no means overdone — it may err at times, as in the attempt at the explanation of the after-effects of a fall; but these are trifles in comparison with the vivid description of *events*, as keenly remembered as they were keenly lived through at the time.

The book deserves careful reading as an intelligent layman's account of his experience during a most interesting and frequent type of recoverable mental disorder, and as a sociological document. It aims to be constructive, and therein lies its superiority over many other criticisms or defenses of existing conditions. To do this and yet to retain the reading quality of a story is a feat denoting a decided literary talent.

A. M

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#### NOTES AND NEWS.

THE present number of the BULLETIN, dealing especially with psychopathology, has been prepared under the editorial care of Dr. Adolf Meyer.

AT the International Congress for Philosophy, which meets at Heidelberg August 31 to September 5, Professor Hugo Münsterberg will preside in the section for psychology. Among the papers to be read at the general sessions is one by Professor Royce, of Harvard, on 'The Nature of Truth in the Light of Recent Discussion.' The American members of the permanent committee are Messrs. Baldwin, Carus, Ladd, MacFarlane, Schurman, and Strong. Membership tickets for the Congress (Mk. 20) may be obtained from the General Secretary, Dr. Elsenhans (Plöck 79, Heidelberg).

